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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/623,608	07/22/2003	Shuhai Lin	5367-001-27	5064

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Washington, DC 20036-2412

EXAMINER
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LUI, DONNA V

ART UNIT	PAPER NUMBER
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2675

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/623,608	Applicant(s) LIN ET AL.	
	Examiner Donna V. Lui	Art Unit 2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 9 Dec 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Information Disclosure Statement*

1. The information disclosure statement (IDS) submitted on December 4, 2004 was filed after the mailing date of the application on July 22, 2003. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner (See attached PTO-1449).

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. **Claims 1, 4, 6-9, 12, and 14-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwang-Chien (Patent No.: 5,517,211) in view of Kuan (Patent No.: 6,762,751).

With respect to **Claim 1**, Kwang-Chien discloses an optical cursor controller (*Figure 3*) including: an operating lens (*Figure 3, element 3*) having an operating surface, a light source (*Figure 3, element 2*) operable so as to radiate light that is directed to the operating lens, wherein reflected light reflected by the object on the operating surface contains an image of the object on the operating surface (*column 2, lines 46-49*). Kwang-Chien teaches a light processing unit (*Figure 3, element 4 and 5*) for receiving the reflected light, monitoring the image of the object contained in the reflected light to detect movement of the object on the operating surface, and generating cursor control signals in accordance with detected movement of the object on the operating surface (*column 2, line 59 through column 3, line 7*).

Kwang-Chien does not mention the limitation, “that permits movement of an object thereon” for the operating surface of the operating lens. However, Kwang-Chien teaches an object (*Figure 3, element 6*) to be situated on the underside of the optical cursor controller such that the optical cursor controller creates the movement between the operating surface and the object. It would have been obvious for a person of ordinary skill in the art to turn over the optical mouse cursor controller, as taught by Kwang-Chien, such that the optical mouse controller is stationary and an object or finger creates movement upon the operating surface. Moreover, in the same field of endeavor (optical mouse) examiner cites Kuan as teaching the reversed usage, as shown in figure 1. Combining the lens (*Figure 3, element 3*) having an operating surface of Kwang-Chien with a reversible operating mouse (*Figure 1*) of Kuan, would meet the claimed limitation “that permits movement of an object thereon”. It would have been obvious for a person of ordinary skill in the art at the time the invention was made to modify the optical cursor

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controller of Kwang-Chien such that the optical mouse could be used in a reversible fashion, as taught by Kuan, for the purpose of eliminating moving parts for simplifying the structure and operation thereof and reducing costs of manufacturing and maintenance (*See column 1, lines 42-45 of Kuan*). The modification further provides for a pointing device operable both in a forward moving mode and rearward moving mode (*See column 1, lines 46-48 of Kuan*).

With respect to **Claim 8**, the claim differs from claim 1 only in that the limitation “a housing formed with a lens-mounting hole therethrough” is additionally recited. Such a limitation defines the operating lens to be mounted in the lens-mounted hole, and the light source and light processing unit to be mounted in the housing. Kwang-Chien teaches a housing (*Figure 3, element 1*) formed with a lens-mounting hole (*Figure 3, right below element 3*) therethrough.

With respect to **Claim 16**, the claim differs from claim 1 only in that the limitation “an electronic apparatus comprising a display module with a display screen, and an optical cursor controller operably associated with the display module for generating cursor control signals that control position of a cursor on the display screen of the display module” is additionally recited. Kwang-Chien does not teach the additional limitation. Kuan teaches an electronic apparatus comprising a display module (*Figure 8, element 400*) with a display screen, and an optical cursor controller (*Figure 8, element 100*) operably associated with the display module for generating cursor control signals that control position of a cursor on the display screen of the display module. It would have been obvious for a person of ordinary skill in the art at the time the invention was made to modify the optical cursor controller, as taught by Kwang-Chien, by associating the optical cursor controller with an electronic apparatus which comprises a display

module with a display screen for the purpose of presenting a variety of modifications (*column 5, lines 6-9*).

With respect to **Claims 4 and 12**, Kwang-Chien teaches an optical cursor controller, wherein the operating lens has a magnifying power within the range of 1 to 6 times (*column 3, lines 14-16*).

With respect to **Claim 6 and 14**, Kwang-Chien teaches an optical cursor controller, wherein the light source includes a light emitting diode (*Figure 2, element 21 and 22*).

With respect to **Claim 9**, Kwang-Chien does not teach the optical cursor controller, wherein the housing has a lower side adapted to be placed on a support, and an upper side adapted for placing a user's hand thereon, the lens-mounting hole being formed in the upper side at a position within reach of a finger on the user's hand. Kuan teaches an optical pointing device (*Figure 1*), wherein the housing (*Figure 1, element 10*) has a lower side and an upper side, a lens-mounting hole (*Figure 1, element 21*) being formed on the upper side at a position within reach of a finger on the user's hand. Kuan further states the ability of the cursor controller elements to be implemented in other devices (*Column 4, line 58 through column 5, line 5*) such as a remote control (*Figure 9, element 50*). It would have been obvious for a person of ordinary skill in the art at the time the invention was made to modify the optical cursor controller of Kwang-Chien, by rearranging the position of the components of the optical cursor controller, as taught by Kuan, for the purpose of having greater versatility for implementing the optical cursor controller (*See column 5, lines 6-9 and figures 7-9*).

With respect to **Claim 17**, Kwang-Chien does not teach an electronic apparatus further comprising a host module connected to the display module and provided with a keyboard

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thereon, the optical cursor controller being mounted on the host module such that the operating surface of the operating lens is accessible from an exterior of the host module. Kuan teaches an electronic apparatus, further comprising a host module connected to the display module and provided with a keyboard (*Figure 8, element 400*) thereon, the optical cursor controller being (*Figure 8, element 100*) mounted on the host module such that the operating surface (*Figure 8, element 30*) of the operating lens is accessible from an exterior of the host module. It would have been obvious for a person of ordinary skill in the art at the time the invention was made to modify the optical cursor controller of Kwang-Chien such that the electronic apparatus includes a keyboard with the optical cursor controller mounted thereon, as taught by Kuan, for the purpose simplifying the structure and operation of the optical cursor controller (*column 1, lines 43-45*).

4. **Claims 2, 3, 10 and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwang-Chien in view of Kuan, as applied to claims 1 and 8 above, and further in view of Chang et al. (Pub No.: US 2005/0001818 A1, herein after referred to as "Chang").

With respect to **Claims 2 and 10**, note the above discussion of Kwang-Chien and Kuan. Kwang-Chien teaches a lens assembly (*Figure 3, element 3*) having an operating surface and converging lens combined in one lens such that the upper part constitutes the converging lens and the lower part constitutes the operating surface. Kwang-Chien does not mention a converging lens disposed between the operating lens and the light processing unit for converging the reflected light prior to receipt by the light processing unit. Chang teaches a lens set (*Figure 2,*

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*element 31*) that is composed of a converging lens and an operating surface. The operating surface is the lower part of the lens set facing the insulation plate (*Figure 2, element 4*) and the converging lens is the upper part of the operating lens facing the light processing unit (*Figure 2, elements 21 and 211*). Thus, it is clear that Chang teaches a converging lens disposed between the operating lens and the light processing unit. It would have been obvious for a person of ordinary skill in the art at the time the invention was made to modify the optical cursor controller of Kwang-Chien as modified by Kuan, such that the converging lens is placed between the light processing unit and the operating lens, as taught by Chang, for the purpose of achieving excellent convergence of light radiated by the light source and for the elimination of diverted light (*page 2, [0012], lines 3-6*).

With respect to **Claims 3 and 11**, Kwang-Chien teaches an optical cursor controller, wherein the operating surface of the operating lens is a convex surface (*Figure 3, element 3, lower part*). Moreover, examiner cites Chang et al. as clearly indicating the use of a convex lens (*Figure 3, element 31, page 2, [0015], lines 1-5*) for an optical cursor controller.

5. **Claims 5, 7, 13 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwang-Chien in view of Kuan, as applied to claims 1 and 8 above, and in further view of Bidiville et al. (Patent No.: 6,218,659 B1, herein after referred to as "Bidiville").

With respect to **Claims 5 and 13**, note the above discussion of Kwang-Chien and Kuan. Kwang-Chien does not mention an operating lens having a thickness not greater than 2 millimeters. Bidiville teaches an optical ball for a pointing device where the lens (*Figure 12B*,



*element 1220*) has a thickness on the order of 1.23mm (column 15, lines 40-41). It would have been obvious for a person of ordinary skill in the art at the time the invention was made to define the parameters of the lens thickness, as taught by Bidiville, for the purpose of focusing the reflected image (*See column 2, lines 63-65*).

With respect to **Claims 7 and 15**, Kwang-Chien does not mention an optical cursor controller, wherein the operating surface of the operating lens and the light processing unit are spaced apart from each other at a distance ranging from 7.30 to 7.60 millimeters along an optical axis.

Bidiville teaches an optical ball for a pointing device (*Figure 12B*) where in one arrangement the distance from the array sensor (*the array sensor is equivalent to the functions of the light processing unit- column 8, lines 46-48, 1230*) to a lens surface (*1220*) is 4.42 mm and in another arrangement (*Figure 12C*) the lens to sensor distance is 3.3mm (*column 15, lines 66-67*). The alternate arrangements of the lens to sensor distances of Bidiville exemplify the variability of the spacing of the operating surface of the operating lens from the light processing unit. Since variability exists for the spacing between the light processing unit and the operating surface of the operating lens, allowing proper operation of the optical cursor controller, then a distance ranging from 7.30 to 7.60 mm can be implemented. It would have been obvious for a person of ordinary skill in the art at the time the invention was made to use a specified the spacing of the light processing unit from the operating surface of the operating lens, as taught by Bidiville, in the optical cursor controller of Kwang-Chien as modified by Kuan, for the purpose of providing good responses (signals representative of movements of the cursor) over varying distances of the light processing unit to the operating surface of the operating lens (*column 2 lines 22-25*).

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Ebina et al. (Patent No.: US 6,300,940 B1) is cited to teach an optical cursor controller which permits movement of an object on the operating surface of an operating lens.

Kato (Patent No.: 5,463,387) is cited to teach an illumination system for converging light for an optical mouse.

Van Brocklin et al. (Patent No.: US 6,847,350 B2) is cited to teach an input device for using an optical sensor for detecting movements of objects on a curved surface for cursor control.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donna V. Lui whose telephone number is (571) 272-4920. The examiner can normally be reached on Monday through Friday 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

  
CHANH NGUYEN  
PRIMARY EXAMINER